

DIPTERA FROM NEPAL

ASILIDAE

By H. OLDROYD

SYNOPSIS

Of the eight species in the collection six are described as new. The genus *Cophinopoda* Hull, 1958, is revised and six species are distinguished by differences in the male and female terminalia. Three of the six are described as new, and the geographical distribution of the various species is discussed.

As entomologist with the British Museum Expedition to Eastern Nepal in 1961-62, Mr. R. L. Coe brought back a small, but interesting collection of Asilidae. There are 37 specimens, belonging to eight species, each from a different genus. Only two of these can be identified with known species, and these with some degree of doubt.

The Asilidae of India have recently been catalogued by Rattan Lal (1960). This is an excellent summary of previous work, and makes it possible for the first time to describe new species of Asilidae from India with some degree of confidence. There are some omissions from the Catalogue; a paper of my own, describing three new species of *Stichopogon* from Southern India, published in 1948, is overlooked. Nevertheless the Catalogue is a valuable starting-point for future workers who will find a great many new species of Asilidae to describe from India.

In so far as this collection shows any marked zoogeographical affinities they are with the Palaearctic Region. Five of the eight genera concerned—*Cyrtopogon*, *Machimus*, *Neomochtherus*, *Heteropogon* and *Philonicus*—are essentially genera of temperate climates, though a few tropical species are known. *Oldroydia* appears to be a Himalayan derivative of *Cyrtopogon*. *Neolaparus* is a genus of the Old World tropics, best known in Africa. *Cophinopoda* has a most interesting distribution, which is discussed in detail in the present paper.

Oldroydia maculata sp. n.

(Text-figs. 1, 2, 5)

The genus *Oldroydia* was erected by Professor F. M. Hull for some specimens in the British Museum that I had set apart from *Cyrtopogon* on account of the maned or crested thorax, and of a large projection from the fore femur which appeared as a secondary sexual character of the male. The antennae of the type species, *O. hamata* Hull, 1956 have the third segment elongate, and terminated by a spatulate or disciform plate with a small spine (Text-fig. 4). This and the thoracic mane are common to both sexes.

In Mr. Coe's material is a second species, distinguished at once from *hamata* in the male by having a conspicuous black spot at the extreme tip of the wing: a shadow appears in the same spot in the female, but is not obvious to the naked eye

(Text-fig. 1). In both sexes of the new species the antennae have no spatulate tip, ending in a pointed style. In other respects the general colouring is almost identical with that of *hamata*.

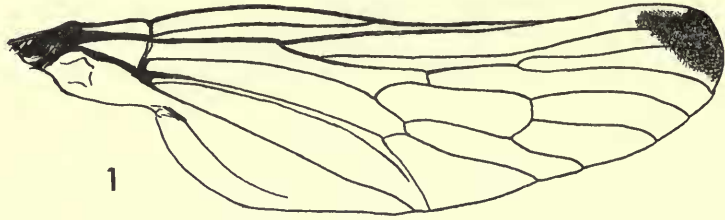
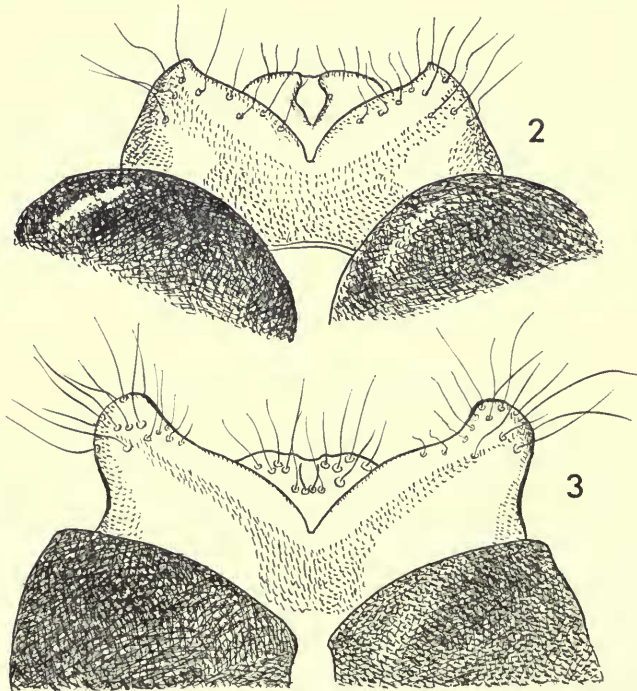


FIG. 1. Wing of *Oldroydia maculata*, sp. n.

MALE. *Head* : facial knob large, smoothly convex from mouth-margin to bases of antennae ; with thick grey tomentum, and a moustache consisting of very fine, silky black hairs, as long as height of head, and longer than antennae. Frons with grey tomentum and long, fine, erect black hairs, very long ones arising from ocellar tubercle. Occipital hairs very long, fine, silky black, with no strong bristles. Beard mostly black. Palpi black with black hairs. Antennae black with fine black hairs ; first two segments about equal in length ; third segment narrow and awl-like, half as long again as two basal segments together ; style 3-segmented, pointed, about as long as first segment (Text-fig. 5).



FIGS. 2, 3. Ninth tergite and terminal lamellae of males of *Oldroydia maculata* (2) and *O. hamata* (3).

Thorax. Pronotal collar of hairs soft, brownish. Mesonotum black, with a brown pattern that is partly shining. A broad, dark brown, median stripe bears on its middle third a crest or mane of erect black hairs almost as long as the antennae; on each side of this brown stripe is a well-marked yellow stripe. Hairs over rest of mesonotum equally long, but sparser, except on scutellum where they are dense, very long and erect, and partly yellowish. Pleura blackish brown, brown hairs on propleuron and a tuft of long, brown hairs on metapleuron; otherwise hairs black.

Abdomen. Laterally compressed as in *hamata*. Shining black, with dense, erect hairs. Dorsally a narrow black stripe. Remainder of first four tergites, and middle of fifth, with long yellowish hairs. Sides of fifth and entire tergites posterior to this with short, crisp, orange hairs. Venter of abdomen with black hairs, of the same length as those on corresponding tergites. Genitalia black with long black hairs; Text-fig. 2 shows the structure, and the differences from *hamata* (Text-fig. 3).

Legs. Fore leg armed as in *hamata*, but with greater elaboration; basal process longer; apex of femur produced dorsally into a finger-like tip; apex of tibia enlarged; four tarsal segments also enlarged at tip. Other legs normal in shape. All femora black, tibiae red with black apex, tarsi black. Hairs and bristles a mixture of black and red, not nearly concolorous with ground colour as in *hamata*. Coxae with black hairs.

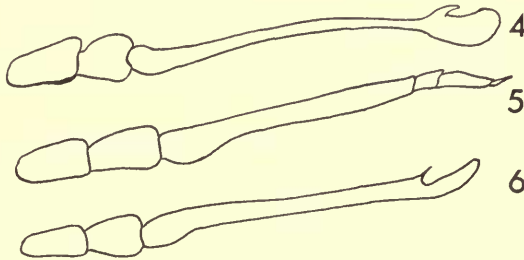
Wings (Text-fig. 1). As in *hamata*. The vein *Sc* is short, ending level with extreme base of discal cell. Thereafter vein *R*₁ runs very close to and parallel with costa. Wing is broad across basal half, but constricted apically. All cells open to margin, including anal cell. Much of membrane is smoky brown and at extreme tip a very clearly defined black spot. Halteres brownish.

Length of body 18 mm.; of wing 10 mm.

Female similar to male except in following respects:—Legs normal without any of the special structures of the male. Hairs of coxae and femora paler. Abdomen shiny with long, erect, pale hairs, and each segment with an interrupted posterior band of whitish tomentum. A trace of median stripe of black hairs can be detected, but is not conspicuous. Wings with vein *Sc* slightly longer than in male and apical half of wing less obviously constricted. Wing almost uniformly smoky, with a faint grey cloud at extreme tip, but no obvious spot.

Holotype ♂, 4 ♂, 2 ♀ paratypes: NEPAL: Taplejung Dt., damp evergreen forest above Sangu, c. 8,500 ft., 2–26.xi.1961 (*R. L. Coe*).

In the British Museum collection is a single female from the type locality of *O. hamata*, the Mishmi Hills of Assam. Again it has the same colouring as *hamata* and *maculata*, but the antenna is intermediate in structure. The style is thickened and has a distinct dorsal spine (Text-fig. 6). This specimen implies that *hamata* and *maculata* might be extremes of one species, but the differences in genitalia seem decisive. Perhaps there is a small group of sibling species in the Himalayas.



FIGS. 4–6. Antennae of *Oldroydia hamata* (4), *O. maculata* (5) and of the specimen from Assam mentioned in the text (6).

Cyrtopogon ornatus sp. n.

A large, black species, with conspicuous dark markings on the wings, and tufts of white hair on body and legs. These details distinguish it from the two species described by Bromley (1935). *C. laphrides* Walker, 1851—the type of which is not to be found in the British Museum, but three specimens from S.E. Tibet agree with the original description—differs from *ornatus* in having the body and legs almost obscured by dense, tawny hairs.

MALE. Head. Hairs of frons, face and antennae fine, long, silky and all black. Upper occiput and a strip along eye-margins with black hairs, but lower occiput with dense white hairs. Antennae entirely black.

Thorax. Pronotum and propleuron covered with thick white tomentum, and with long, white hairs. Mesonotum black-brown, with fine, black hairs arranged in a pattern leaving bare a pair of longitudinal stripes. Humeri and two spots touching them have white tomentum but black hairs: on transverse suture are two more tiny white spots. Scutellum uniformly black-brown with long, erect, black hairs. Pleura black with thin whitish tomentum and isolated tufts of long, dense hairs. Mesopleural tuft predominantly white, with some black hairs; metapleural tuft mostly black.

Abdomen. Broad at base, and stout, shining black dorsally, with only small, white triangles in extreme corners of segments in posterior half of abdomen. Hairs entirely black, long and erect, densest and most conspicuous at sides of first four tergites.

Legs. Black and with predominantly black hairs. White tufts on coxae and, most prominently, on apical half of fore femora; posteriorly and on basal half of hind tibiae a long white tuft; a golden yellow fringe on posterior face of hind tibia and tarsus.

Wings. Venation normal for genus. Cross-veins at base and apex of discal cell heavily stained brown, as is costa. Tip of wing as far back as first posterior cell is also brown-stained. Brown colour is produced by densely packed microtrichiae, which are subject to abrasion, and so one would expect to find variation in these markings in different individuals. Halteres orange.

Length of body 14 mm.; of wing 12 mm.

FEMALE. Closely resembles male in markings. Patches of white tomentum behind humeri and on posterior segments of abdomen larger, and apex of wings less distinctly darkened.

Holotype ♂, 1 ♀ paratype: NEPAL: Taplejung Dt., damp evergreen oak forest above Sangu, c. 10,400 ft., 2-26.xi.1961, "flying swiftly over path in clearing" (R. L. Coe).

Machimus ? assamensis Ricardo, 1919

Machimus assamensis Ricardo, 1919, *Ann. Mag. nat. Hist.* (9) 3: 46.

NEPAL: Taplejung Dt., between Sangu and Tamrang, deep river gorge, c. 5,200 ft., x-xi.1961; 1 ♂ (R. L. Coe).

This male agrees with a short series of both sexes in the British Museum from ASSAM: Mishmi Hills, 4,000 ft. (*M. Steele*). I had set these aside as possibly a new species, but it seems that there is little tangible difference from Ricardo's species except that the forceps of Ricardo's male type are perhaps rather more slender. If we had a series of specimens that agreed with the type in this respect I should have more confidence in describing the Nepal material as a new species.

Neolaparus coei sp. n.

The recent catalogue of Rattan Lal (1960) lists only one Indian species of *Neolaparus*, *N. volcatus* Walker, 1849 (*hyphaon* Walker, 1849 ; *bifidus* Wulp, 1898). This is a dark brown species with uniformly brown wings. In the British Museum are examples of two or three unnamed species from Southern India and Ceylon, but the species brought back by Mr. Coe is distinguished from all these by the wing, which is faintly smoky and has a sharply defined, darker stigma behind the tip of *Sc* and *R*₁. It is a rather unusual *Neolaparus* in having only a very small and inconspicuous spur on the fore tibia, and in having hairs and even weak bristles on the scutellum. I have pleasure in naming it after the collector.

The two sexes of this species are exactly similar except for the genitalia, which are of no help in determining the species, so a single description will suffice.

Head. Frons and face dark brown with a tomentum that shifts in colour from bronze to dark brown as the specimen is rotated. Frons with a narrow, shining black line vertically between the antennae, and a single row of fine black hairs along each eye-margin. Very prominent ocellar tubercle with two strong black bristles. Moustache reduced to a double row of light brown bristles, and above this, up bases of antennae, sparse fine brown or black hairs. Antennae with first two segments relatively stout and equal in length, yellow, with long yellow hairs ventrally and some black ones above ; third segment slenderly clavate, darker, covered with velvety pile, which also extends over first segment of style ; second segment of style is a narrow spine. Palpi and proboscis dark brown, partly yellowish, with yellow hairs. Buccae narrow at base ; occiput with pale yellowish tomentum and a single row of short bristles, pale or brown.

Thorax. Velvety reddish brown with black pattern, which varies in intensity, but consists dorsally of paired black stripes with three black spots on each side. Pleura sharply divided horizontally, with a velvety brown band across ventral half of sternopleuron and pteropleuron, extending on to upper areas of coxae ; mesopleuron with a black spot, otherwise upper pleura yellowish. Bare of hairs except for vertical fringe of pale bristles immediately before halteres.

Abdomen. Dorsally shining black with a greenish sheen. A row of median red spots is small on first and second segments, but larger on posterior segments. Segments 3-5 with a red basal band. Clothed with short black hairs, and a few pale ones laterally. Venter reddish, dull, with yellowish tomentum and yellow hairs.

Legs. Femora and lower half of coxae light brown or yellowish ; tibiae light brown, darker at tips ; tarsi brown. Hairs and bristles varying from light to dark brown.

Wings. Lightly smoky, with a little darker brown along veins, and especially on forks and cross-veins. A conspicuous, clearly defined, black brown stigma between tips of *Sc* and *R*₁, spreading backwards into first posterior cell.

Length of body 9-10 mm. ; of wing 9 mm.

Holotype ♂, 5 ♀ paratypes : NEPAL : Taplejung Dt., old mixed forest above Sangu, c. 6,200 ft., 25-28.x.1961, flying over dead leaves (*R. L. Coe*).

Neomochtherus sanguensis sp. n.

A small, slender black and grey species, not closely allied to any species known to me, and unique in its entirely black legs. The two sexes are closely alike in colour and pattern.

Head. Frons and face with white or yellowish tomentum. Frons with sparse row of fine hairs along each eye-margin ; ocellar tubercle small, with several weak black hairs. Antennae

black : first two segments with greyish tomentum and black hairs ; third segment as long as first two together ; arista slightly shorter, facial knob weak. Moustache mainly white bristles and hairs, with a few black ones. Palpi and proboscis black with snow-white hairs, which extend also to beard and lower part of occiput. Upper occipital bristles black, strong but not long, and not proclinate.

Thorax. Mesonotum ashy brownish grey, with a pattern of darker brown : two admedian stripes and three quadrate spots on each side, and before scutellum a dagger-shaped black mark. Scutellum black with grey tomentum, which leaves two small black spots basally. Bristles and hairs black. Three pairs of strong dorsocentrals, all behind suture, and in front of this, fine hairs of diminishing length forwards. Two notopleurals, two supra-alars, two postalars and two marginal scutellars. Pleura black, but with thick whitish grey tomentum : fine white hairs and fine bristles in a vertical row on metapleuron and hypopleuron, mostly white, a few black ones dorsally.

Abdomen. Dorsally dull black brown : first segment, base of second and a broad apical band on second and subsequent segments, white. Clothed with black hairs, and along each side a row of long bristles, one or a pair on each side of each segment being either white or black. Venter black with brownish grey tomentum and fine white hairs.

Legs. Coxae and trochanters like pleura, rest of legs entirely black, clothed with fine white hairs ; bristles black on tarsi, mostly white elsewhere.

Wings. Without pigment, but heavily covered with microtrichia in all cells, thus giving wing a grey appearance. Halteres with brown stalk and yellow knob.

Length of body 13 mm.; of wing 11 mm.

Holotype ♂. NEPAL : Taplejung Dt., Sangu, c. 6,200 ft., resting on rocks in the sun, 9-17.x.1961.

Paratypes. NEPAL : Taplejung Dt., Sangu, c. 6,200 ft., resting on rocks in the sun, 9-17.x.1961, 6 ♂, 9 ♀ ; same locality, mixed vegetation by stream in gully, 1 ♀ (*R. L. Coe*).

Heteropogon nitidus sp. n.

A single specimen, unfortunately with the antennae completely broken off, of a slender and bare *Heteropogon* with shining black abdomen and scutellum, black femora and red tibiae ; the hind pair are black-tipped. *Heteropogon* is a Holarctic genus, not previously recorded from India.

The nearest relative of the present species seems to be *H. lugubris* Herman, 1905, from the Pamirs, but the face of *lugubris* is shining white instead of bronze, with the black and white bristles of the moustache differently arranged. Moreover, the description given by Engel (1925, p. 43) suggests that the abdomen of *lugubris* is bare and silvery only on the hind margins of the tergites, and that some at least of the tergites are reddish.

Head. [Antennae completely broken off, so that no antennal characters can be given.] Face and frons about one quarter as wide as head, with frons broadening only slightly above antennae. Frons black with white and golden tomentum and sparse black hairs. Ocellar tubercle very prominent, with four long, slender black bristles. Face broadening slightly towards mouth-margin, with thick yellow tomentum. Facial knob slight, moustache of black and yellow bristles, slender, rather widely spaced, extending over two-thirds of height of face. Proboscis and palpi black with some silvery hairs ventrally which merge with a sparse beard. A long row of black postocular setae.

Thorax. Mesonotum black, densely covered with brown and yellowish grey tomentum. Pattern appears as a broad brown median stripe and lateral spots. Scutellum, in striking contrast to mesonotum, is quite bare and shining black with four fine marginal bristles and some smaller marginals, but no hairs visible on disc. Pleura ashy grey, a little brownish dorsally. Mesopleural hairs black.

Abdomen. Dorsally bare, highly polished black with a slight greenish metallic sheen. The only trace of pattern is a pair of tiny white spots at extreme sides of first five segments (two pairs on second segment). Very short and sparse yellowish hairs over all dorsum, longer white ones laterally. Venter with greyish tomentum and whitish hairs. Eighth segment of female curiously flattened above, and with acanthophorites bearing a crown of short black spines.

Legs. Coxae like pleura. Femora shining black, slender; middle and hind femora with a conspicuous black preapical dorsal bristle; all femora with two white antero-basal bristles and with some long white bristly hairs ventrally. Fore and middle tibiae and tarsi dark red with black tips to tarsi. Hind tibiae clavate, red with black tip; basitarsus very swollen, black, other tarsal segments tapering gradually, also black. Hind coxae with a distinct anterior process.

Wings. Venation generalized. All cells on wing-margin open, including anal cell. Wing stained smoky brown, becoming rather paler in anal and axillary cells. Halteres clear brown.

Holotype ♀. NEPAL: Taplejung Dt., damp evergreen oak forest above Sangu, c. 8,500 ft., 2-26.xi.1961 (*R. L. Coe*).

Philonicus curtatus sp. n.

(Text-figs. 7-8)

A black-legged species, rather close to the widespread Palaearctic *P. albiceps*, but distinguished, at least in the female, by the blackish brown colour of the abdominal segments, with narrow white hind-margins, and by the distinctly shorter eighth tergite (Text-figs. 7, 8). Two female specimens in Mr. Coe's collection match another female standing unnamed in the British Museum collection.

FEMALE. Head. Covered with dense silvery tomentum and only sparsely hairy. Frontal hairs confined to a row of fine black hairs on each side. Face bare except for a moustache which covers only mouth-margin, and the small facial hump; moustache white ventrally, black dorsally. Beard silky, shining white. Upper occiput with a row of strong black bristles. Proboscis and palpi black with silky hairs ventrally and otherwise yellow hairs. Antennae entirely black with black bristles.

Thorax. Black brown with ashy grey tomentum, which leaves on mesonotum a broad, divided median stripe merging into a prescutellar patch, and laterally to this three spots on each side. Scutellum all grey, without marginal bristles in the holotype, and with two or possibly four in the paratype. Other bristles: two notopleurals, one supra-alar, and two postalars all strong and black. Otherwise mesonotum is clothed with short black bristles; humeri with fine silky white hairs and no bristles. Pleura with white tomentum, white bristles in a row in front of halteres, and some fine white hairs elsewhere.

Abdomen. Of distinctive pattern. Each segment with black brown tomentum and fine black hairs over most of disc, grey ones on narrow hind margin and broader lateral areas. Each tergite with a row of black bristles on hind margin of dark spot, lateral bristles of each row long and strong. Sternites dark grey with black bristles in middle and slender black ones on hind margin of darker area, leaving posterior margin of each segment paler and bare. Some fine white hairs anteriorly and laterally. Ovipositor as in Text-fig. 7, of *Philonicus*-type with upturned bristles at tip, but with eighth tergite distinctly shorter than in *P. albiceps* (Text-fig. 8).

Legs. Coxæ grey like pleura, but some at least of strong bristles black and conspicuous. Rest of legs black with black bristles, but entirely clothed with fine white hairs.

Wings. Faintly and uniformly smoky, with microtrichia in almost all cells. Halteres dull orange.

Length of body 17 mm.; of wing 13 mm.

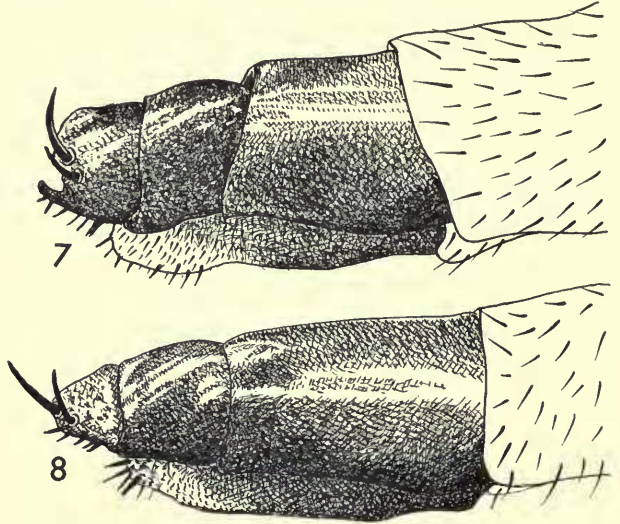


FIG. 7. Ovipositor of *Philonicus curtatus*, sp. n.

FIG. 8. Ovipositor of *Philonicus albiceps* Meigen.

Holotype ♀, 1 ♀ paratype. NEPAL : Taplejung Dt., Sangu, c. 6,200 ft., resting on rocks in sun, 9-17.x.1961 (R. L. Coe).

Paratype ♀. ASSAM : Khasi Hills. (Purchased from E. Heyne.)

Cophinopoda chinensis (Fabr.)

NEPAL : Taplejung Dt., Sangu, c. 6,200 ft., on mixed vegetation by stream in gully, ix-xi.1961, and on yellow blooms of cultivated Compositae (*Guizotia abyssinica* Cassini), 16-29.x.1961, 2 ♀ (R. L. Coe).

The relationships of this species are discussed below.

Cophinopoda Hull

Hull, 1958, *Proc. ent. Soc. Washington* 60 : 251.

Type, *Asilus chinensis* Fabricius, 1794, by original designation.

It has been known for many years that the yellow-and-black Asilidae standing in collections as *Ommatius chinensis* (Fabricius) probably included more than one species, and certainly did not belong to the genus *Ommatius* Wiedemann.

Specimens falling into this category occur in the Far East from Japan and Korea south to Queensland, and round the shores of the Indian Ocean to Madagascar. They share a distinctive appearance : robust, 20–25 mm. in length, with a rounded head, a stout abdomen, colour generally dull black except for the reddish abdomen, but generally covered with tawny tomentum and black hairs and bristles, wings smoky yellow brown.

The definitive character of the genus *Cophinopoda* is a small patch of hairs immediately above the base of each haltere, just below what is usually called the metanotal callosity. Fortunately it is not necessary to depend upon this for identification, because the genitalia are conspicuous in both sexes, and distinctive not only for the genus but for individual species. The upper forceps of the male are large and convex, and have a long, curved, ventral process ; the lower forceps are not developed, but the claspers are large and can be seen even without dissection, between the body of the upper forceps and its ventral process. In the females the eighth sternite is deeply notched posteriorly, dividing into two wings which are of distinctive shape and provided with distinctive bristles or long hairs.

Examination of all the material before me indicates that it can be divided into species that are separated territorially, and easily distinguished from each other by the genitalia as shown in Text-figs. 9–18.

I can recognise six species : *pulchripes* (Bigot), *garnotii* (Guérin), *chinensis* (Fabricius), *andrewsi* sp. n., *timorensis*, sp. n. and *philippinensis* sp. n. In addition there is in the British Museum collection the female type of *Ommatius androcles* Walker, 1849, which was described as from "Sandwich Is.". This is clearly belonging to *Cophinopoda*, but both its specific identity and the correctness or otherwise of the locality are in doubt, as is explained below.

Cophinopoda pulchripes (Bigot) comb. n.

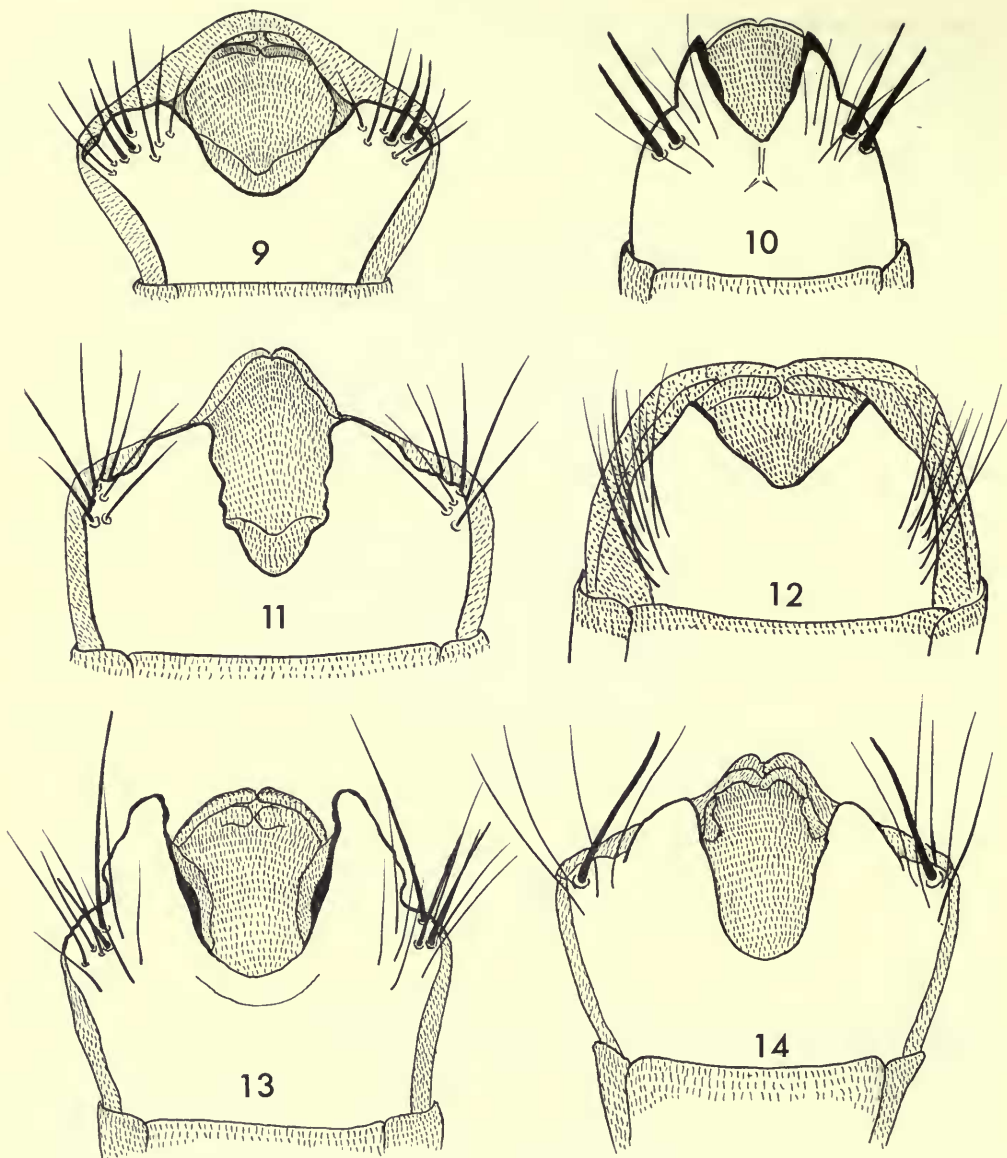
(Text-figs. 10, 18)

Ommatius pulchripes Bigot, 1859, *Ann. Soc. ent. France* (3) 7 : 419 ; Speiser, 1910, *Kilimandjaro-Meru Exped.* 10 (4) : 105–6 ; Lamb, 1922, *Trans. Linn. Soc. Lond.* 18 : 361.

Ommatius mayottae Bigot, 1859, *Ann. Soc. ent. France* (3) 7 : 422.

Ommatius chinensis Oldroyd, 1959, *Mém. Inst. sci. Madagascar* 11 : 302 nec Fabricius, 1794.

Many years ago I examined Bigot's types in the Hope Department of Entomology, Oxford, and formed the opinion that they belonged to one species which certainly extends from the Seychelles, through the Comoro Islands, to Madagascar. When I reviewed the Asilidae of Madagascar in 1959 I regarded this as a western extension of the distribution of *chinensis* Fabricius, but this was incorrect, as the figures of genitalia show. Hull (1962 : 438) correctly states that the Madagascar species is distinct from *chinensis* taken in the Far East, but unfortunately his illustration of the female (1962 : 800, fig. 2355), though labelled *chinensis*, is a dorsal view of *pulchripes*. Hull also states that *chinensis* has been recorded from Sokotra ; I have not been able to trace this record, but I should expect it to be *pulchripes*.



FIGS. 9-14. Female genitalia of *Cophinopoda* spp.: *chinensis* Fabricius (9); *pulchripes* Bigot (10); *garnotii* Guérin (11); *timorensis* sp. n. (12); *andrewsi* sp. n. (13), and *philippinensis* (14).

Cophinopoda garnotii (Guérin)

(Text-figs. 11, 17)

Asilus garnotii Guérin-Ménéville, 1830, *Voyage autour du Monde . . . sur la corvette "La Coquille"*. *Atlas Ins.* pl. 20, fig. 8.

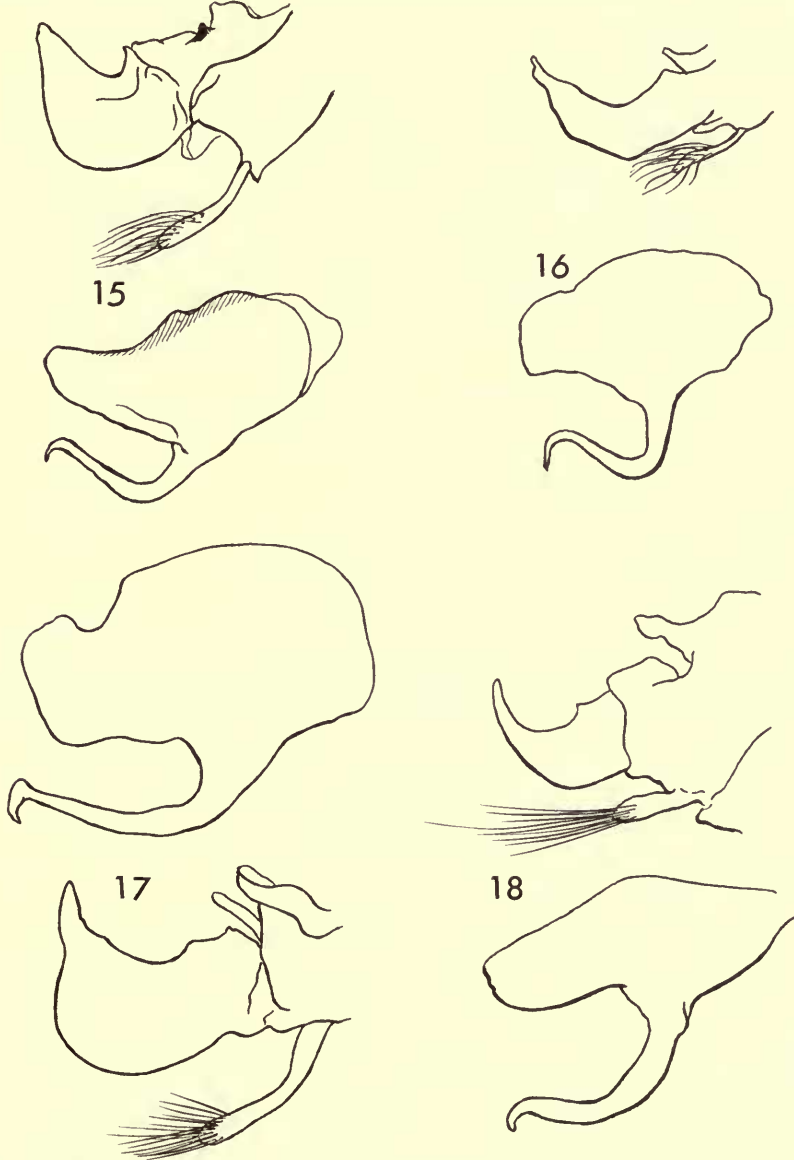
Ommatius pennus Walker, 1849, *List Dipt. Brit. Museum* 2 : 469.

Ommatius fulvus Doleschall, 1857, *Natuurk. Tijdschr. Ned. Ind.* (3) 4, tab. VI, fig. 5.

Ommatius inextricatus Walker, 1862, *Proc. Linn. Soc. Lond.* 6 : 21.

Ommatius concinnens Wulp, 1872, *Tijdschr. v. Ent.* (2) 7 : 260.

Ommatius chinensis Ricardo, 1913, *Ann. Mag. nat. Hist.* (8) 11 : 163 ; Hardy, G. H., 1928, *Proc. Roy. Soc. Queensland* 40 : 62 ; Malloch, 1929, *Proc. Linn. Soc. N.S.W.* 54 : 408 ; Hardy, G. H., 1935, *Ann. Mag. nat. Hist.* (10) 16 : 168 ; *nec* Fabricius, 1794.



FIGS. 15-18. Male genitalia of *Cophinopoda* spp.: *chinensis* Fabricius (15) ; *andrewsi* sp. n. (16) ; *garnotii* Guérin (17), and *pulchripes* Bigot (18).

There is no original description of this species, but the coloured illustration, together with the figure of the antenna, show it to be *Ommatius chinensis* (Fabricius) as interpreted by the various authors cited above. Guérin himself came to that conclusion, for in the report of the same expedition (*Zoologie* 2 : 292) he records the same specimen as *Ommatius fulvidus* (Wiedemann), and this is one of the synonyms of *chinensis*. Guérin says that at the time that the plate was engraved he had not then seen Wiedemann's description, and he also adds that the specimen came from Buru in the Moluccas.

All specimens that I have seen from a wide area of the Far Eastern Archipelago, and down to Queensland, have genitalia of the type shown in Text-figs. 11, 17. G. H. Hardy's figure labelled "*Ommatius chinensis* ? Fab." (1935 : 169, fig. 20) clearly shows the clasper with the characteristically acute tip. The name *garnotii* is therefore available for this species, of which I have seen specimens from Queensland, the Solomon Islands, Amboina, Ceram, Borneo, Malaya (Selangor Dt.) and Thailand (Bangkok). These last localities on the continental mainland are rather surprising, but there is abundant confirmation among the specimens in the British Museum collection. Compare this with the distribution of *C. chinensis*, set out below.

Cophinopoda chinensis (Fabricius)

(Text-figs. 9, 15)

Asilus chinensis Fabricius, 1794, *Ent. Syst.* 4 : 383.

Dasygogon flavescens Fabricius, 1805, *Syst. Ant.* : 169.

Ommatius fulvidus Wiedemann, 1821, *Diptères exotiques* : 214.

Ommatius coryphe Walker, 1849, *List Dipt. Brit. Mus.* 2 : 469.

Ommatius pennus Walker, 1849, *List Dipt. Brit. Mus.* 2 : 469.

This species, also, is clearly defined by the genitalia of both male and female (Text-figs. 9, 15). It comprises all the specimens that I have seen from Korea, Japan, China, India and Ceylon, including the two specimens collected in Nepal by Mr. Coe, and listed earlier in this paper. It also includes all the specimens I have seen from Sumatra and Java.

The distribution of *chinensis* in relation to that of *garnotii* (Text-fig. 19) shows an unusual boundary through the Malacca Strait and the Java Sea, which does not coincide with any of the various "lines" that have been proposed in this region for different groups of animals.

[LECTOTYPE fixation for *Ommatius pennus* Walker

Ommatius pennus Walker (1849, *List Dipt. Brit. Mus.* 2 : 469) was described from two specimens, listed thus : *a* Corea. Presented by Sir E. Belcher. *b* Borneo. Presented by the Admiralty. Both specimens exist in the British Museum collection, and support the conclusions about distribution given in the present paper : the specimen from Korea (Corea) has the genitalia of *chinensis* (Fabricius) and the specimen from Borneo belongs to *garnotii* (Guérin).

I hereby designate the specimen *a* from Korea as the lectotype of *Ommatius pennus* Walker, making this name a synonym of *chinensis* (Fabricius). Under

Recommendation 74E of the International Code of Zoological Nomenclature, 1961, the specimen *b* from Borneo becomes a paralectotype of *Ommatius pennus* Walker, even though it is specifically distinct from the lectotype.]

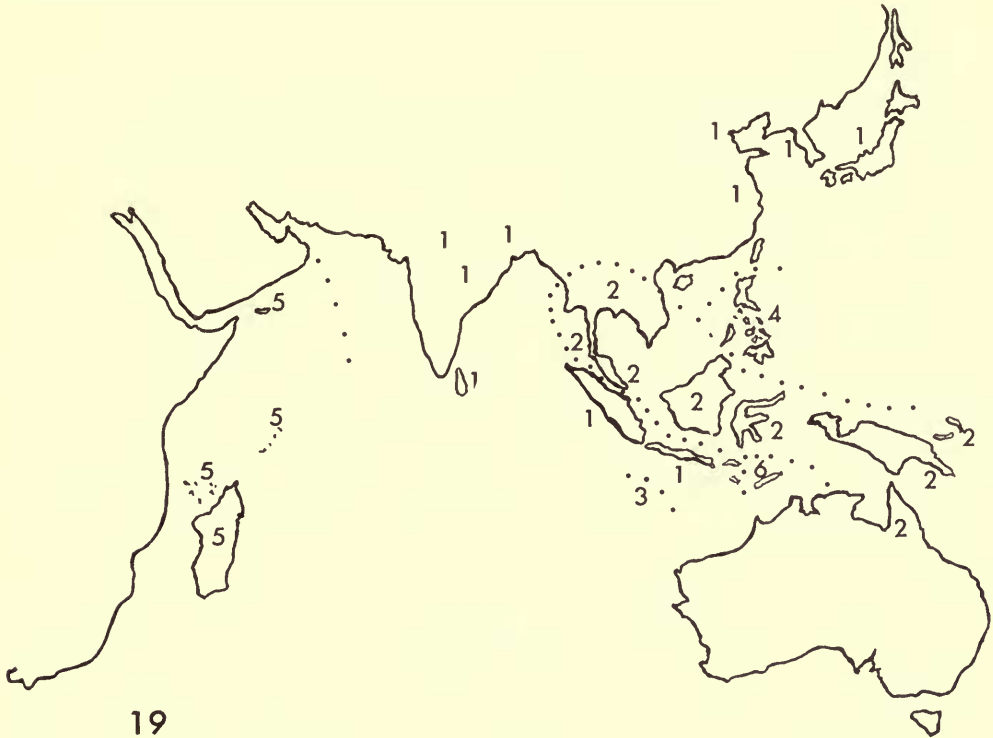


FIG. 19. Map of the known distribution of the species of *Cophinopoda*: *chinensis* Fabricius (1); *garnotii* Guérin (2); *andrewsi* sp. n. (3); *philippinensis* sp. n. (4); *pulchripes* Bigot (5), and *timorensis* Bigot (6).

Cophinopoda andrewsi sp. n.

(Text-figs. 13, 16)

A large black species, lacking the tawny tomentum of the mesonotum which is a feature of all the other species except *pulchripes*. From *pulchripes*, *andrewsi* is distinguished by the larger size, by having the tibiae dull red instead of reddish yellow, and the fore tarsi without tufts of pale hair laterally and by the very distinct genitalia in both sexes (Text-figs. 13, 16).

FEMALE. Head. Frons blackish with thin yellow tomentum, and with abundant black hairs in tufts: one tuft on each side of vertex along eye-margin; one tuft each side above antennae; and a dense tuft of stiff black hairs behind ocelli. First two antennal segments orange with black hairs, third segment black. Face orange in ground colour with yellow tomentum and covered with fine hairs, merging into stiff bristles in lower mystax; proportion of black to yellow varies, but usually predominantly pale. Proboscis and palpi black with pale hairs. Beard pale. Occipital hairs and bristles mainly pale, some black.

Thorax. Mesonotum black with ashy grey tomentum, forming an indistinct pattern, with a pair of median darker stripes visible only posteriorly. Evenly covered with short, bristly black hairs, longer posteriorly and on black scutellum. Humeri and postalar calli dull reddish, with rather longer hairs, especially on postalar calli. Very strong black bristles: 2 presutural, 1 supra-alar, 1 postalar, 6-8 pairs dorsocentrals, all clustered behind base of wing; two marginal scutellars. Pleura ashy grey with blackish patches; hairs mostly soft, yellow, but black cluster on mesopleuron.

Abdomen. In ground colour black with narrow orange hind margins, and fairly long yellow hairs, mingled with a few black ones. Venter similar. Female genitalia as in Text-fig. 13.

Legs. Femora black with yellow clothing hairs. Tibiae dull red, without black tips. Tarsi black or partly dull reddish, especially basally. Bristles of legs black.

Wings. Without distinctive features.

Length of body 27 mm.; of wing 22 mm.

MALE. Closely similar, genitalia as in Text-fig. 16.

Holotype ♀, 8 ♀, 18 ♂ paratypes, all from CHRISTMAS ISLAND, 1897 (*C. W. Andrews*) (B.M. 1898-20, 1909-66).

Other paratypes, also from CHRISTMAS ISLAND: 3 ♂, 1 ♀ collected by Dr. *C. A. Gibson-Hill*, 1939-40 (ex F.M.S. Museum, B.M. 1955-354); 2 ♂, 1 ♀, coll. *M. F. W. Tweedie*, viii.-ix. 1932 (ex F.M.S. Museum, B.M. 1955-354).

The account of the expedition given by Mr. Andrews (1900, A Monograph of Christmas Island (Indian Ocean), London, British Museum (Natural History)) shows clearly that this is the Christmas Island that is situated south of Java, and not the island of the same name in the Pacific.

Cophinopoda philippinensis sp. n.

(Text-fig. 14)

Ommatius fulvidus Osten-Sacken, 1882, *Berl. ent. Z.* 26: 111, nec Wiedemann, 1821.

Osten-Sacken, in his account of Diptera from the Philippine Islands, brought home by Dr. Carl Semper, records: "*Ommatius fulvidus* Wied. A. Z. I. 420. Must be as common in the Philippines as in Amboina, Celebes, etc."

The single female I have seen from the Philippine Islands looks, indeed, indistinguishable from *chinensis* Fabricius (*fulvidus* Wiedemann), until we look at the genitalia, which are sharply different. Until I have more specimens for comparison I am not able to give any other points of difference, but the genitalia have proved so diagnostic in this genus that this one structure is sufficient to define the species (Text-fig. 14).

Cophinopoda timorensis sp. n.

(Text-fig. 12)

The only known specimen is so similar in general appearance to *C. chinensis* that it is difficult to pinpoint any significant differences. The brown tomentum of the head and thorax is perhaps more greyish, and the tibiae have more distinct apical black rings, especially the fore tibiae. The species is really defined on the female genitalia as shown in Text-fig. 12.

Holotype ♀. TIMOR: a single specimen collected by *Alfred Russell Wallace*, and given by him to W. W. Saunders. It came to the British Museum with Saunders' collection, B.M. 1868-4.

Wallace's comments in his book *THE MALAY ARCHIPELAGO* (1894) on the origin of the fauna of Timor are apt in comparing this species with the others of the genus.

THE IDENTITY AND ORIGIN OF *Ommatius androcles* Walker, 1849

As already stated, this species was founded upon one specimen, a female recorded as from : "Sandwich Island. Presented by Captain Beechey". This specimen stands in the British Museum at the present day, but unfortunately its eighth sternite is broken, and the most that can be said of it is that it appears to be indistinguishable from *Cophinopoda chinensis* (Fabricius).

The locality attributed to this specimen is especially intriguing because no Asilidae are known from the Hawaiian Islands. Captain Beechey, who commanded the sloop H.M.S. *Blossom*, was despatched to the Pacific during the years 1825-28 for the purpose of waiting in the Behring Strait in case either Parry or Franklin should succeed in finding a North-West Passage. During the periods in which the Strait was frozen, Captain Beechey was ordered to cruise usefully among the islands of the Pacific, charting and surveying. He called twice at "Woahoo" (=Oahu) and actually left his naturalist there for eight months from May, 1826-January, 1827. The naturalist, Mr. Tradescant Lay, was suffering from dysentery, and Captain Beechey reasonably argued that he would be more usefully employed ashore in Hawaii than cruising in Behring's Strait.

There is thus no direct reason to question the locality of the Asilid : it could have been taken in Oahu. On the other hand it could have been taken later on the voyage when the ship called at Macao. Here officers not only went ashore, but lived ashore for some time in the houses of Portuguese officials. One would think that if anyone did this the naturalist would be among them. He might easily have caught this fine Asilid there and afterwards mistakenly included it in his Hawaiian catch.

I asked Prof. D. Elmo Hardy for his opinion, and he concurs in the view that Walker's type is probably a *chinensis* from the mainland. Prof. Hardy thinks it unlikely that such a large predatory insect would have become totally extinct in Hawaii since Beechey's time ; while I am impressed by the similarity to the eighth sternite of *chinensis*, and feel that if the species had really lived in such isolation on the Hawaiian Islands it would have become as distinct as *andrewsi* or *philippinensis*.

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